

Appl. No. : 10/081,028  
Filed : February 21, 2002

### AMENDMENTS TO THE CLAIMS

Please cancel Claims 11-14.

Please amend the claims as follows:

1. (Currently Amended) A mechanism for exchanging chip-carrier plates for use in a hybrid chip-bonding machine having a chip-detaching system and a common base element, the mechanism comprising:

a plurality of chip-carrier plates;

a magazine having a plurality of slots to store the plurality of chip-carrier plates, wherein the magazine vertically moves the chip-carrier plates so that a selected chip-carrier plate can be positioned in a release position and an empty slot can be positioned in a receiving position;

a transport arrangement having a first and a second clamping device that are disposed on a movable holder in a manner such that the transport arrangement is designed to remove a selected chip-carrier plate from the magazine, deliver the selected chip-carrier plate to a processing station of the chip-detaching system, and after processing remove the selected chip-carrier plate from the processing station and deposit the selected chip-carrier plate in the magazine, wherein the first and second clamping devices are positioned in the transport arrangement so as to substantially simultaneously ~~removes~~ remove a new selected chip carrier plate from the magazine while depositing the selected chip carrier plate in the magazine;

a first controller configured to move the chip-carrier plates within the magazine in a manner such that the selected chip-carrier plate is positioned at a collection point to be collected from the magazine; and

a second controller configured to move the movable holder of the transport arrangement, wherein the second controller allows for vertical movement of the first and second clamping devices in a predetermined displacement range and also longitudinal movement of the first and second clamping devices along a predetermined displacement range wherein the first and second clamping devices are disposed one above the other in a vertical arrangement on the holder and are constructed so that each can individually release or grip a chip-carrier plate on one and the same angular position of the holder.

2. (Previously Presented) The mechanism of Claim 1, wherein the first and second clamping devices comprise a receiving element with a pneumatically or electrically actuated clamp for the controllable fixation of a chip-carrier plate or the release thereof.

3. (Previously Presented) The mechanism of Claim 1, wherein the chip-carrier plates are constructed as plates with a substantially square outer shape and engagement bores to engage the clamping devices of the transport arrangement as well as a holding device of the chip-detaching system.

4. (Previously Presented) The mechanism of Claim 1, wherein the chip-carrier plates are designed to receive conventional chip carriers selected from the group consisting of a type of the waffle pack, gel pack, and carrier-film frame.

5. (Previously Presented) The mechanism of Claim 1, wherein the first and second clamping devices are attached to a common base element that can be displaced vertically with respect to a housing of the transport arrangement.

6. (Currently Amended) A method of operating a mechanism for exchanging chip-carrier plates in a hybrid chip-bonding machine, wherein, when a transport arrangement of an exchanging mechanism is in a first working position, comprising the steps of:

vertically moving the chip carrier plates in the magazine such that a selected chip carrier plate is positioned in a release position and an empty slot is positioned in a receiving position;

removing a selected chip-carrier plate from [[a]] the release position in the magazine by vertically moving a transport arrangement vertically and longitudinally along predetermined displacement ranges while substantially simultaneously

depositing another chip-carrier plate into the receiving position in the magazine, which has been taken out of a processing station, wherein the selected chip carrier plate and the another chip carrier plate are oriented in the magazine so as to be positioned one

above the other to thereby facilitate substantially simultaneous removal and depositing in a magazine, and when the transport arrangement is in a second working position,

transferring the chip-carrier plates taken from the magazine into the processing station,

removing the processed chip-carrier plates from the processing station, such that each transport event from the magazine to the processing station and in the reverse direction is carried out while a chip-carrier plate is being handled in the processing station.

7. (Previously Presented) The method of Claim 6, wherein delivering the selected chip-carrier plate to the processing station further includes the step of returning the selected chip-carrier plate from the processing station to the magazine.

8. (Previously Presented) The method of Claim 6, wherein the transport arrangement moves only in a straight line in both directions between the first and second working positions.

9. (Previously Presented) The method of Claim 6, wherein the steps are performed in the listed order.

10. (Previously Presented) The method of Claim 6, wherein the steps are performed in the reverse of the listed order.

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

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15. (Currently Amended) A mechanism for exchanging chip-carrier plates in a chip-bonding machine having a processing station, the mechanism comprising:

a magazine having a plurality of slots to store the chip-carrier plates, wherein the magazine vertically moves the chip carrier plates so that a selected chip carrier is positioned in a release position and an empty slot is positioned in a receiving position;

a transport arrangement having a first and second clamping device that are disposed on a movable holder so as to be positioned one above the other in vertical alignment wherein the movable holder moves both vertically and longitudinally along predefined ranges such that the transport arrangement is designed to remove a selected chip-carrier plate from the magazine, deliver the selected chip-carrier plate to the processing station, and after processing remove the selected chip-carrier plate from the processing station and deposit the selected chip-carrier plate in the magazine in the receiving position while substantially simultaneously removing another chip carrier plate from the release position; and

a first control component that is configured to move the holder of the transport arrangement, wherein the first and second clamping devices are disposed one above the other on the holder and are configured in a manner such that each clamping device individually releases or grips at least one of the chip-carrier plates in a position relative to the holder.

16. (Previously Presented) The mechanism of Claim 15, wherein the mechanism further comprises a second control component.

17. (Previously Presented) The mechanism of Claim 16, wherein the second control component is configured to move the at least one of the chip-carrier plates within the magazine in a manner such that the selected chip-carrier plate is positioned at a collection point to be collected from the magazine.

18. (Previously Presented) The mechanism of Claim 15, wherein the first and second clamping devices comprise a receiving element with an actuated clamp for the controllable fixation or release of at least one of the chip-carrier plates.

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19. (Previously Presented) The mechanism of Claim 18, wherein the actuated clamp is a pneumatically actuated clamp.

20. (Previously Presented) The mechanism of Claim 18, wherein the actuated clamp is an electrically actuated clamp.

21. (Previously Presented) The mechanism of Claim 15, wherein the chip-carrier plates are constructed as plates with a substantially square outer shape and engagement device.

22. (Previously Presented) The mechanism of Claim 21, wherein the engagement device is used by the transport arrangement as a holding device.

23. (Previously Presented) The mechanism of Claim 22, wherein the engagement device comprise bores, which are configured to engage the clamping devices of the transport arrangement.

24. (Previously Presented) The mechanism of Claim 15, wherein the chip-carrier plates are designed to receive conventional chip carriers.

25. (Previously Presented) The mechanism of Claim 24, wherein the conventional chip-carriers are carrier types selected from the group consisting of a waffle pack, a gel pack, and a carrier-film frame.

26. (Previously Presented) The mechanism of Claim 15, wherein the mechanism further comprises a common base element and a transport arrangement housing.

27. (Previously Presented) The mechanism of Claim 26, wherein the first and second clamping devices are attached to the common base element.

28. (Previously Presented) The mechanism of Claim 27, wherein the common base element may be displaced vertically with respect to the transport arrangement housing.

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29. (Previously Presented) The mechanism of Claim 15, wherein the chip-bonding machine is a hybrid chip-bonding machine.

30. (Previously Presented) The mechanism of Claim 15, wherein the mechanism further comprises a chip-detaching system.

31. (Previously Presented) The mechanism of Claim 30, wherein the chip-detaching system comprises the processing station.

32. (Previously Presented) The mechanism of Claim 15, wherein the first and second clamping devices are disposed one above the other in a vertical arrangement on the holder.

33. (Previously Presented) The mechanism of Claim 15, wherein the first and second clamping devices are configured so that each clamping device individually releases or grips a chip-carrier plate in a substantially similar position relative to the holder.

34. (Previously Presented) The mechanism of Claim 33, wherein the position includes an angular position.